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# 1. Cows

**Program Name: Cows.java**

**Input File: cows.dat**

Farmer John owns a large pasture with  $K$  cows inside. Farmer John's cows are not like most cows. They moo at regular intervals. He was interested in studying these cows, so he hired a scientist to try to identify how many cows he could expect to moo in a certain time interval. The scientist was able to establish, for each cow, the time at which they first moo, and then the length of the delay between successive moos. However, the scientist didn't get much further than that, and went insane, mooing along with the cows. Farmer John got rid of the old scientist and replaced him with you. Since you don't want to go insane, you decide to write a program that, given the information the old scientist obtained, solves the problem for Farmer John.

## Input

The first line of the input will be a single integer  $K$ , the number of cows in Farmer John's field.

The next  $K$  lines of input each consist of two integers:  $S$  and  $I$ .  $S$  is the time of the first moo the cow makes, and  $I$  is the time between moos after the first one for that cow.

The next line is a single integer  $N$ , the number of intervals Farmer John is interested in.

The next  $N$  lines of input each consist of two integers:  $A$  and  $B$ , or the start and end time of each interval (inclusive).

## Constraints

$1 \leq K \leq 20$   
 $0 \leq S \leq 10000$   
 $1 \leq I \leq 10000$   
 $1 \leq N \leq 20$   
 $0 \leq A, B \leq 10000$

## Output

For each interval, output the number of moos that occur in that interval on its own line.

## Example Input File

```
2
0 4
2 5
1
4 8
```

## Example Output to Screen

```
3
```

Explanation of test case:

Each cow will moo at time  $t = S + k * I$ , where  $k$  is a non-negative integer. Or in other words, cow 1 will moo at 0, 4, 8, 12, 16, ... and cow 2 will moo at 2, 7, 12, 17, ....

So for the interval 4 – 8 inclusive, cow one moos twice (at 4 and 8), and cow 2 moos once (at 7), so the total number of moos in this interval is 3.